

REMARKS/ARGUMENTS

Reconsideration of the above-identified application in view of the present amendment is respectfully requested. Claims 1-24 are pending. Claims 1 and 13 are amended and claim 24 is added. The specification has been amended to correct some clerical errors. No new matter is added by this amendment.

Claims 1-5, 7, 9, 13-16, 18, and 20 stand rejected under 35 U.S.C. 102(b) as being anticipated by Shepard (U.S. 6,585,146). Claims 12 and 23 stand rejected under 35 U.S.C. 103(a) as being unpatentable over Shepard in view of Kearney. Claims 6, 8, 10-11, 17, 19, 21-22 stand rejected under 35 U.S.C. 103(a) as being unpatentable over Shepard in view of Traub et al. It is respectfully submitted that claims 1 and 13 as amended patentably distinguish over Shepard. Claim 1 as amended recites monitoring the quality of a weld being formed between first and second pieces of material. The monitoring comprising the steps of: positioning the first and second pieces to abut each other; heating the first and second pieces at their location of abutment to form a pool of material at the location of abutment which pool of material forms a weld between the pieces; simultaneous with said heating step, obtaining a thermal image as the weld is being formed by collecting infrared radiation passing through the second piece of material from the weld and the pool of material; and analyzing the obtained thermal image for characteristics indicative of an acceptable weld being formed.

Shephard neither discloses nor suggests the features in claim 1. By contrast, Shephard discloses a method for evaluating the integrity of a weld nugget 106 after the formation of a weld sample 104 (See Figs. 1 and 2). The apparatus 100 must use a heat source 102 to reheat the weld nugget 106 in order to evaluate the integrity of the weld. The evaluation of the weld is not simultaneous with heating the pieces to form the weld. None of the other prior art discloses or suggests all of the features of claim 1. Therefore, claim 1 is allowable. Claims 2-12 depend from claim 1 and are therefore allowable as depending from an allowable claim and also for the specific features recited therein.

Claim 13 as amended recites monitoring the quality of a weld being formed between first and second pieces of material. The monitoring comprising the steps of: positioning the first and second pieces to abut each other; heating the first and second pieces at their location of abutment to form a pool of material at the location of abutment which pool of material forms a weld between the pieces; determining a range of wavelengths of infrared radiation that will pass through the second piece of material; positioning an infrared detector that is configured to detect infrared radiation within the determined range of wavelengths on a side of the second piece of material opposite the first piece of material; simultaneous with the heating step, obtaining a thermal image as the weld is being formed between the first and second pieces of material by collecting infrared radiation within the

determined range of wavelengths from the weld and the pool of material; and analyzing the obtained thermal image for characteristics indicative of an acceptable weld being formed.

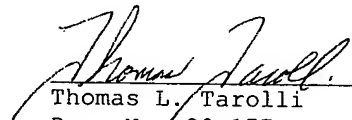
Shephard neither discloses nor suggests the features in claim 13. By contrast, Shephard discloses a method for evaluating the integrity of a weld nugget 106 after the formation of a weld sample 104 (See Figs. 1 and 2). The apparatus 100 must use a heat source 102 to reheat the weld nugget 106 in order to evaluate the integrity of the weld. The evaluation of the weld is not simultaneous with heating the pieces to form the weld. None of the other prior art discloses or suggests all of the features of claim 13. Therefore, claim 13 is allowable. Claims 14-23 depend from claim 13 and are therefore allowable as depending from an allowable claim and also for the specific features recited therein.

New claim 24, which depends from claim 13, should be allowed for the same reasons as claim 13 and also for the additional feature that the step of obtaining the thermal image of the weld being formed includes the step of filtering the infrared radiation to block out the electromagnetic energy having a first wavelength that is used in heating the first and second pieces at their location of abutment to form a pool of material and a weld between the first and second pieces. None of the prior art discloses or suggests this feature and including the other limitations of claim 13. Therefore, claim 24 is allowable.

In view of the foregoing, it is respectfully submitted that the above-identified application is in condition for allowance, and allowance of the above-identified application is respectfully requested.

Please charge any deficiency or credit any overpayment in the fees for this amendment to our Deposit Account No. 20-0090.

Respectfully submitted,


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